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March 15, 1996

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MAR 15 1996

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF SECRETARY

Mr. William F. Caton
Acting Secretary
Federal Communications Commission
1919 M Street, NW, Room 222
Washington, DC 20554

Re: Ex Parte Presentation
CC Docket 92-297
28GHz Spectrum Band Plan

Dear Mr. Caton:

On Friday, March 15, 1996, Waring Partridge, Rich Currier and I met with Jennifer Warren and David Wye of the Wireless Bureau and Tom Tycz of the International Bureau to review AT&T's position in the attached March 7 letter on 28GHz Band Plan.

Two copies of this Notice are being submitted to the Secretary of the FCC in accordance with Section 1.1206(a)(1) of the Commission's rules.

Sincerely,

Judy Arenstein

Two (2) Attachments

cc: Jennifer Warren
David Wye
Tom Tycz

No. of Copies rec'd 0+2
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March 7, 1996

Via Messenger

Scott Blake Harris
Chief, International Bureau
Federal Communications Commission
2000 M Street, N.W., Room 800
Washington, D.C. 20554

Michele C. Farquhar
Wireless Telecommunications Bureau
Federal Communications Commission
2025 M Street, N.W., Room 5002
Washington, D.C. 20554

Re: CC Docket 92-297 (28 GHz Band Plans)

Dear Mr. Harris and Ms. Farquhar:

AT&T Corp. ("AT&T") has reviewed the two 28 GHz band plans that apparently are being considered by the Commission's staff. These two options were distributed to parties to this proceeding by Karl Kensinger and Jennifer Gilsenan of the International Bureau on March 5, 1996. The two options are described as "Option 4 prime" and "Option 5."

AT&T, by its counsel, would like to take this opportunity to ensure that its views regarding the above-mentioned two options are included in the record in this proceeding.

AT&T strongly supports Option 5 and urges the Commission to adopt it promptly. Option 5 provides the requisite 1 GHz of usable spectrum for GSO/FSS systems such as AT&T's VoiceSpan® system of Ka band satellites.

AT&T strongly opposes Option 4 prime and urges the Commission to reject that band sharing plan. Option 4 prime is unacceptable because it would strictly limit the use of 135 MHz

(out of a total of 1010 MHz) to GSO/FSS gateway operations only. Option 4 prime assumes a particular GSO/FSS architecture that segregates the gateway and VSAT/customer premises equipment spectrum. However, AT&T's analysis continues to conclude that such segregation would be inefficient and unworkable for the VoiceSpan system. Option 4 prime would effectively provide AT&T with only 875 MHz of usable uplink spectrum which, for AT&T, is insufficient for a viable system.

AT&T does not believe the Commission should impose architectural restrictions on operators in its band plan. Such restrictions would be adverse to the public interest because they are likely to hamper innovation and to preclude the deployment of newer, efficient technologies.

Lastly, AT&T would like to respond to the assertion by the LMDS community that Option 5 allegedly will raise LMDS subscriber unit costs due to the non-contiguous layout of the spectrum under that option. AT&T notes that in all of the options considered in this proceeding, the GSO community itself will have to contend with non-contiguous spectrum. This non-contiguous spectrum will burden the GSO industry with both increased satellite and customer premises equipment costs and complexities. AT&T, like LMDS operators, will have to design and manufacture customer premises equipment that spans a greater frequency range, and in addition, will have to design and build satellites that cannot take advantage of the simplicities and efficiencies of a repetitive, contiguous frequency plan. While AT&T would prefer not to have to contend with this non-contiguous spectrum and its associated costs, AT&T acknowledges that all players in this Ka band spectrum should share some of the burden associated with accommodating all of the interested parties. AT&T suggests that the burden to the LMDS community of dealing with its non-contiguous spectrum in Option 5, or any of the options for that matter, is balanced by the significant burdens borne by the GSO community in dealing with its non-contiguous spectrum.

For all the reasons described above, AT&T urges the Commission to reject Option 4 prime and move promptly to adopt Option 5.

Thank you for this opportunity to express our views.

Sincerely,

Stephen L. Goodman
William F. Maher, Jr.

Counsel for AT&T Corp.

cc: Chairman Reed E. Hundt
Commissioner James H. Quello
Commissioner Andrew C. Barrett
Commissioner Susan Ness
Commissioner Rachelle Chong
Mr. Rudolofo Baca
Ms. Lauren Belvin
Mr. Brian Carter
Ms. Jackie Chorney
Ms. Jennifer Gilsenan
Mr. Donald Gips
Ms. Giselle Gomez
Mr. Robert James
Mr. Karl Kensinger
Mr. Blair Levin
Ms. Susan Magnotti
Ms. Jane Mago
Dr. Michael Marcus
Ms. Mary McManus
Mr. Harry Ng
Dr. Robert Pepper
Dr. Gregory Rosston
Mr. David Sidall
Ms. Lisa Smith
Ms. Suzanne Toller
Mr. Thomas Tycz
Ms. Jennifer Warren
Mr. David Wye

AT&T VoiceSpan®: Re-inventing the Telephone System

Waring Partridge
AT&T Vice President,
Home Place℠ Services

Satellite Broadcasting and Communications Association
Las Vegas '96 International Conference
Global Broadband Satellite Systems (Ka-band) Panel
"AT&T VoiceSpan® Digital Satellite Services"
March 5, 1996

It has been fashionable over the last decade for companies to re-engineer themselves or re-invent their product. It's tantamount to developing a corporate culture of periodic or even continuous renewal. However, not all companies take the same approach to this mission.

With today's rapid pace of technology change, the aggressiveness of global competition, and the often changing winds of market demand, many business leaders do not feel confident in their ability to predict, and are even less comfortable in their willingness to make long-term investment. It seems much more prudent to build "lean and mean" warrior organizations, grab as many near-term "sure things" as opportunity allows, and rely on hunters rather than farmers to feed the shareholders.

But history has repeatedly shown that the agrarian cultures survive longer and achieve higher forms of civilization than cultures that use their strength to kill, feast and move on. Thus there are also many companies that take a longer range and more comprehensive view of re-inventing their product. Quite clearly companies interested in cultivating the value of Ka-band satellites come bearing shovels and ploughs, not spears and shields.

AT&T counts itself among those companies interested in the rich harvest this satellite technology is expected to yield. With AT&T's recent FCC license filings for AT&T VoiceSpan Digital Satellite Services, we've broken ground.

AT&T's interest in Ka-band satellite based services is wholly related to its broader corporate mission of re-inventing the telephone system. There are many requirements for the next century's telephone system. Some people would say that the first requirement is to eradicate the word telephone! After all, the "dumb" telephone, with its little key pad and confinement to the senses of hearing and speaking, can hardly survive the arrival of intelligent devices, with full keyboards, clicky mouses, touchy screens and the enticement of our eyes! But the telephone -- and the network system behind it -- should not be judged too deficient, even for the next century. Voice, or better the world of sound and spoken words, has its place, and will live on, much as radio has survived television, or CDs have re-invented the vinyl record in the midst of VCRs and cable. More to the point, three-quarters of the world's population still does not have the basic telephone service that we term "plain and old" in the industrialized nations. Even in this country, universal service is still missing about 5% of the population. Telephony has miles to go before it sleeps.

But there is good cause to ponder whether a re-invented telephone is really a PC, or the re-invented telephone system is the Internet. For the sake of being contrary, I might equally ask if the PC has re-invented itself as a communications device, still struggling to tell Watson he's needed, or if the Internet is perhaps more a prototype than a product? I hardly wish to diminish the value and impact of computers and interconnected data networks; but from the broad perspective of the next century, I believe that the fundamental benefits of the telephony system must re-assert themselves, albeit re-invented for a new age, yet faithful to its core values. The mission to re-invent the *telephone* system stands proud.

The re-invention is based on three key trends: the shift from real time to non real time communications; the shift from fixed and wired communications to mobile and wireless systems; and the shift from voice to multiple media. The traditional core values that need to be preserved are stated in AT&T's corporate mission, which has been captured since I was literally a little boy in the phrase "any time, any where, any thing." In fact, I have a mug on my desk from around the 1960's with an old Bell System logo that says "Anytime, Anywhere, Anything". It is remarkable that the very forces that will mold the re-invention of the telephone system -- messaging, mobility and multimedia -- are in exact alignment with the telephony mission as perennially viewed by AT&T.

[redacted]

Trend			Mission
Real Time	→	Non-Real Time (Messaging)	*Any Time*
Wired	→	Wireless (Mobility)	*Any Where*
Voice	→	Multiple Media (Multimedia)	*Any Thing*

The trend to non real time communications is witnessed in the growth of messaging, with voice mail, fax and e-mail being convincing examples. The basic objective is to decouple the end points in time, hence permitting the sender and receiver to engage the communication *any* time.

The trend to wireless is usually demonstrated in the explosive growth of cellular systems and the advent of PCS. But communications satellites and microwave towers have long been part of the telecommunications infrastructure. In fact, radio and television, although one-way broadcast systems, have long demonstrated the values of infrastructure built in the air. From transistor portable radios to cell phones, the key value continues to be based on the human need for mobility, the need to engage in communications *any* where.

Finally, the trend to multimedia is the ultimate fulfillment of communicating *any* thing -- voice, fax, text, binary data, images, video, in any combination or proportion. The use of multiple media has the immense driving power of allowing information to be presented any way the human wants it. I hasten to add that all these "anys" imply a rich set of choices for the customer, with the further implied obligation to provide help in the complexity of choice. Intelligent agents, in many product forms, will by necessity be born to serve that function.

Now how does AT&T VoiceSpan services fit into this re-invention scenario? In so far as future satellite applications will involve interpersonal communications, companies that have competencies in two-way communication and networking are prime contenders for leadership position.

But before answering this question, let's review some basics about the service.

AT&T VoiceSpan services will employ 12 geostationary satellites in 7 orbital positions (sufficient for global coverage), utilizing the part of the spectrum known as Ka-band. The system will provide *two-way* communications at speeds ranging from 32 kp/s to 2.0 Mb/s. The end user connects to the system with a small dish antenna (approximately two feet in diameter). The satellite will use CDMA (Code Division Multiple Access) technology for communication with the earth station (chosen for highly reliable protection against interference and for efficiency in sharing limited spectrum), and ATM or ATM-like (Asynchronous Transfer Mode) on-board switching (chosen for speed and ease of bandwidth management).

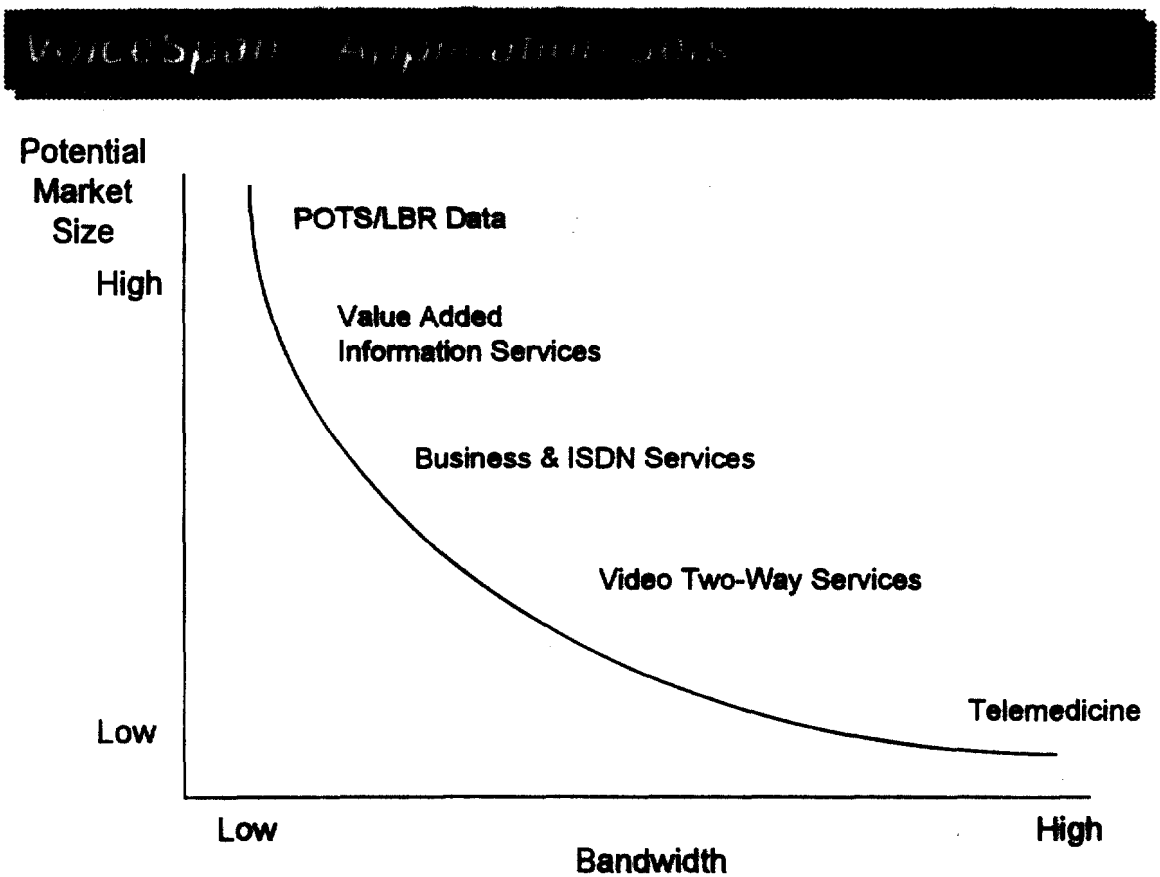
- 12 Geo-stationary satellites
- Utilizes Ka-band part of spectrum
- Two-way communications
- 32 kbps to 2.0 Mbps
- Small Dish Antenna
- CDMA and ATM technology

The AT&T VoiceSpan satellite network is indeed an "anywhere" network. Once this system is in place, the introduction of new infrastructure -- for example, the introduction of telephony in developing nations -- can be partially reduced to the decision between running physical lines to each home or business location, perhaps cumulatively laying thousands of miles of conduits, or simply placing small dishes on a roof top to establish service. Even where telephony service exists, a second -- or replacement -- communications link can be easily installed. And because AT&T VoiceSpan Services will interconnect with the Public Switched Telephone Networks, the range of offered services will be seamless and complete.

Looking at the trend to multiple media, the high bandwidth capabilities (ranging from twice today's top modem speeds up to business grade T-1) will

handle desktop collaboration applications at 384 kb/s or Internet surfing with ISDN BRI experiences. You can't transmit the Library of Congress, but within reason you can communicate any thing!

Applications will range from mass market delivery of POTS, fax and low bit rate data (e.g. e-mail) to business and ISDN services, where we have identified ISDN as a signaling standard. In these markets we will find a number of well-suited, broader bandwidth applications, such as teleconferencing or telemedicine.



Within each application area one finds a multitude of target markets. For example, under Video Services we expect to serve video telephony, telemedicine, real estate applications and many more segments. The point is that VoiceSpan is capable of competing across the full range of telecommunications applications, which is a natural corollary to being part of a reinvented telephone system.

Now, when AT&T first invented the telephone system in the United States, it did so as a monopoly. As it re-invents that telephone system for the

21st century, it will certainly not be a lone player. In fact, just about every characteristic of building the next century network will be the antithesis of monopoly. In particular, AT&T will seek friends, allies and partners to help till the Ka-band field.

Seeking the Right Partners

- Consumer Electronics Industry
- Businesses (including Telecom Authorities)
- Space Segment Suppliers

There are three areas where we seek to establish partner relationships: with consumer electronics companies to build the terminal drivers that will sit behind the satellite dishes; with business partners in markets to help take advantage of the global reach and inherent infrastructure benefits of VoiceSpan satellites; and with the space segment suppliers, to build the payload and launch it into orbit.

For the space segment suppliers, we seek to enter non-exclusive relationships with multiple vendors. Together we could bring about innovation, lower cost structure, better managed risks, extended life cycles and increased reliability.

For business partners, including Telecommunication Authorities, the revenue prospects of expanding access to and utilization of broadband technology are immense. In addition, this enabling technology will likely produce new, unthought of, applications that will enhance economic wealth.

For the consumer electronics industry, whose attention should be peaked by the consumer surge for DirecTV, the prospects are certainly interesting. Given that we anticipate reaching millions of households, the mass market appeal is evident. In fact, this industry could grow orders of magnitude as applications are enabled.

I would enjoy dialog with members of these industries, and I hold out the invitation for exploring ways that we can together help re-invent the telephone systems with AT&T VoiceSpan service. However, if we're going

to farm together and share the crop, I would expect that we also share the labor and that we each bring provisions that will last us to the harvest. AT&T is prepared to sign memorandums of understanding with partners in any of these industries. We are prepared, for example, to offer royalty-free or not-for-profit licenses to help create a group of players that seek each others mutual success.

I would even take the concept of mutual success a step further.

Spectrum is a scarce resource. Sharing would make more spectrum available to everybody. In our current national approach to spectrum management, "speculation" is driving up the cost of doing business. The myriad of recent satellite applications is overloading the regulatory process, spawning auctions, even raising the possibility that government will have to police against speculation, which would be yet another overhead cost.

I believe there may be attractive spectrum management alternatives which could provide opportunities for all parties to share the entire 2.5 Ghz using CDMA techniques to significantly eliminate traditional interference issues throughout the Ka-band used by satellites in geo-stationary orbits, non geo-stationary orbits, and local, multipoint distributed systems (LMDS).

VoiceSpan System Advantages

- Rich body of AT&T technology (shared with industry)
- CDMA enables co-existence with other systems
- Full frequency reuse in each beam
- Bandwidth on demand
- Ability to trade service quality for capacity
- Steerable beams accommodate demand shifts
- ATM-like packetized switching

CDMA can improve sharing between LMDS and satellite systems. In truth, I am not an advocate for any technology; I'm strictly an advocate for success. I would certainly think that we, as an industry, should consider using a technology that could eliminate interference, increase a scarce

resource, and do away with a significant amount of legal and regulatory squabble, even if we have to gamble on technology advances over the next half decade to rectify the known problem with CDMA. We should note that in some parts of the world, for example, Europe, CDMA technology has been used to realize some of these benefits. AT&T can offer, on commercially reasonable terms, technology and know how that could move the industry forward.

I'm delighted to have been given the opportunity to participate in this panel discussion, and I look forward to hearing from you on my invitation.

Contact List

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